

REMARKS

In response to the Office Action mailed October 3, 2003, Applicants respectfully request reconsideration. To further the prosecution of this application, Applicants have amended the claims and submit the following remarks.

Claims 1-32 were previously pending in this application. Claims 1-16, 21, 22, 28, and 29 were indicated to be allowable. Claims 17-20, 24-27, 31, and 32 were rejected. Claims 1, 11, 17, 23, 24, 30, 31, and 32 are amended herein, and claims 33-38 are newly added. Claims 1-38 are now pending and the application as presented is believed to be in condition for allowance.

Although the Office Action indicated claim 1 as previously pending to be allowable, Applicants believe they are entitled to a broader claim and have amended claim 1 accordingly. Claim 1 still distinguishes over the cited art as the prior art fails to disclose or suggest "a pulse shaper means, adapted to pulse shape sidelobes of a cyclic extended DMT-symbol." Claim 33, which is newly added, depends from claim 1 and is patentable for at least the same reasons.

Claim 34 is also newly added and patentably distinguishes over the prior art because the prior art fails to disclose or suggest, "windowing means adapted to multiply a first number of samples at the beginning and end of a block of $2N$ plus the first number of samples of the DMT symbol, wherein $2N$ is defined as the number of a samples in a non-cyclic extended DMT symbol; folding and adding the first number of samples divided by two from the beginning of the block to the end of the $2N$ remaining samples; and folding and adding the first number of samples divided by two from the end of the block to the beginning of the $2N$ remaining samples," as recited in claim 34.

Newly added claims 35-38 depend from claim 34 and are patentable for at least the same reasons.

Objections to the Specification

The Office Action objected to the abstract asserting that the abstract should be limited to a single paragraph having less than 150 words. Applicants have amended the abstract accordingly. Thus, it is respectfully requested that the objection to the abstract be withdrawn.

The Office Action objected to the arrangement of the specification for not including appropriate section headings. Applicants have amended the specification to include appropriate

section headings. Accordingly, it is respectfully requested that the objection to the arrangement of the specification be withdrawn.

Rejections Under 35 U.S.C. §112

The Office Action rejected claims 1-16, 23, and 30 under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the Office Action asserted that the parameters μ and N in claims 1, 11, 23, and 30 are not defined. The Office Action further asserted that μ^2 on line 13 of claim 1 should be $\mu/2$. Claims 2-10 and 12-16 were rejected for being dependent on the rejected independent claims.

Applicants have amended claims 1, 11, 23, and 30 for clarification and the claims are now clear enough to satisfy the statute. Accordingly, it is respectfully requested that the rejection of claims 1-16, 23, and 30 under 35 U.S.C. §112, second paragraph be withdrawn.

Rejections Under 35 U.S.C. §103(a)

The Office Action rejected claims 17-20, 24-27, 31, and 32 under 35 U.S.C. §103(a) as being obvious over Bingham (6,035,000). Applicants respectfully disagree with this rejection.

Bingham is directed to a telecommunications system that includes a number of optical network units (i.e., central office modems) that communicate over a fiber optic line with a number of remote units (i.e., end user modems) (Col. 4, lines 16-29). In Bingham, a signal is modulated by the central office modem and passed through a windowing filter and/or other filters before being applied to the transmission medium (Col. 14, lines 13-20 and Figure 12). The signal is received by a remote unit which demodulates the signal and may also perform windowing of the received signal (Col. 14, lines 45-59 and Figure 13).

By contrast, claim 17 recites, *inter alia*, “pulse shaping the time domain symbol to form pulse-shaped wings on the time domain symbol in order to reduce crosstalk in other transmission channels of the plurality of transmission channels.” While Bingham performs windowing and/or other filtering on a signal prior to transmission of the signal, Bingham fails to teach or suggest

pulse shaping a symbol **to form pulse shaped wings on the symbol**. Therefore, claim 17 patentably distinguishes over Bingham.

Claims 18-20 depend from claim 17 and are patentable for at least the same reasons. Accordingly, it is respectfully requested that the rejection of claim 17 under 35 U.S.C. §103(a) be withdrawn.

Claim 24 is directed to an apparatus for transmitting a frequency domain symbol having a plurality of frequency components. The apparatus comprises, *inter alia*, a pulse shaper having an input and an output that, prior to transmission of the first time domain symbol, receives at the input of the pulse shaper the first time domain symbol and shapes the first time domain symbol to form pulse-shaped wings on the first time domain symbol so as not to interfere with other symbols on other transmission channels in order to generate a second time domain symbol at the output of the pulse shaper.

As should be clear from the discussion above, claim 24 patentably distinguishes over Bingham, as Bingham fails to teach or suggest this limitation in combination with the other limitations of claim 24. Accordingly, it is respectfully requested that the rejection of claim 24 under 35 U.S.C. §103(a) be withdrawn.

Claims 25-27 depend from claim 24 and are patentable for at least the same reasons. Accordingly, it is respectfully requested that the rejection of claims 25-27 under 35 U.S.C. §103(a) be withdrawn.

Claim 31 is directed to an apparatus for processing a frequency domain symbol having a plurality of frequency components. The apparatus comprises, *inter alia*, "means for reducing the frequency content of the time domain symbol so as not to interfere with other symbols on other transmission channels by pulse shaping the time domain symbol to form pulse-shaped wings on the time domain symbol."

As should be clear from the discussion above, claim 31 patentably distinguishes over Bingham, as Bingham fails to teach or suggest this limitation in combination with the other limitations of claim 31. Accordingly, it is respectfully requested that the rejection of claim 31 under 35 U.S.C. §103(a) be withdrawn.

Claim 32 is directed to a method for transmitting a frequency domain symbol having a plurality of frequency components. The method comprises, *inter alia*, "reducing the frequency

content of the time domain symbol by pulse shaping the time domain symbol to form pulse-shaped wings on the time domain symbol so as not to interfere with other symbols on other transmission channels prior to transmission of the time domain symbol.”

As should be clear from the discussion above, claim 32 patentably distinguishes over Bingham, as Bingham fails to teach or suggest this limitation in combination with the other limitations of claim 32. Accordingly, it is respectfully requested that the rejection of claim 32 under 35 U.S.C. §103(a) be withdrawn.

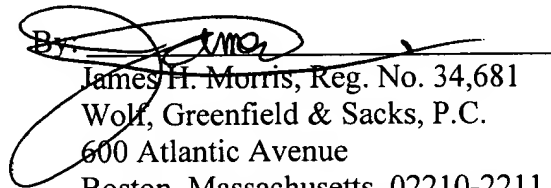
CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below to discuss any outstanding issues relating to the allowability of the application.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

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